Amendments to the Claims:

This listing of the claims replaces all prior versions of the claims in the application.

Listing of claims:

1. (previously presented) A waveguide grating device, comprising:
at least one waveguide having an end, the end having an endface; and
a guided-mode resonance waveguide grating fabricated on the endface of the at least one waveguide, the guided-mode resonance waveguide grating having at least one waveguide layer and at least one grating layer.

2. (original) The device of claim 1, wherein the at least one waveguide is a fiber.

3. (original) The device of claim 1, wherein the at least one waveguide is rectangular in shape.

4. (original) The device of claim 1, wherein the at least one grating layer comprises a dielectric material.

5. (original) The device of claim 1, wherein the at least one grating layer comprises a polymer.

6. (original) The device of claim 1, wherein the at least one waveguide layer comprises a dielectric material.

7. (original) The device of claim 1, wherein the at least one waveguide layer comprises a polymer.

8. (original) The device of claim 1, wherein the at least one grating layer and the at least one waveguide layer comprise the same layer.

9. (original) The device of claim 1, wherein the at least one grating layer and the at least one waveguide layer comprise different layers in contact with each other.

10. (previously presented) The device of claim 9, wherein the guided-mode resonance waveguide grating further comprises at least a third layer in contact with the at least one waveguide layer, the at least one grating layer, or both the at least one waveguide layer and the at least one grating layer.

11. (currently amended) The device of claim 10, wherein the at least third layer comprises a dielectric material.

12. (original) The device of claim 10, wherein the at least third layer comprises a metal.

13. (canceled)

14. (previously presented) The device of claim 9, wherein the guided-mode resonance waveguide grating further comprises a third layer in contact with the at least one grating layer.

15. (currently amended) A system comprising:

a waveguide grating device, comprising:

at least one waveguide having a proximal end and a distal end having an endface; and

a guided-mode resonance waveguide grating fabricated on the endface of the at least one waveguide, the guided-mode resonance waveguide grating having at least one waveguide layer and at least one grating layer, the waveguide grating also having a plurality of ~~variable~~ parameters including at least one permittivity of the at least one grating layer, permittivity of the at least one waveguide layer, periodic structure of the at least one grating layer, grating fill factor of the at least one grating layer, thickness of the at least one waveguide layer, and thickness of the at least one grating layer.

16. (previously presented) The system of claim 15, further comprising:

a source coupled to the proximal end of the at least one waveguide for propagating a signal therethrough;

wherein after the signal is propagated, it contacts the guided-mode resonance waveguide grating and is reflected from the waveguide grating in whole or in part, or transmitted through the waveguide grating in whole in or in part, depending at least partially upon the plurality of variable parameters.

17. (original) The system of claim 16, wherein the source is a laser.

18. (original) The system of claim 16, wherein the source is a continuous wave source.

19. (original) The system of claim 15, further comprising a photodetector operationally coupled to the at least one waveguide.

20. (original) The system of claim 19, wherein the photodetector comprises silicon.

21. (original) The system of claim 19, wherein the photodetector comprises the human eye.

22. (original) The system of claim 15, wherein the at least one waveguide is a fiber.

23. (original) The system of claim 15, wherein the at least one waveguide is rectangular in shape.

24. (original) The system of claim 15, wherein the at least one grating layer comprises a dielectric material.

25. (original) The system of claim 15, wherein the at least one grating layer comprises a polymer.

26. (original) The system of claim 15, wherein the at least one waveguide layer comprises a dielectric material.

27. (original) The system of claim 15, wherein the at least one waveguide layer comprises a polymer.

28. (original) The system of claim 15, wherein the at least one grating layer and the at least one waveguide layer comprise the same layer.

29. (original) The system of claim 15, wherein the at least one grating layer and the at least one waveguide layer comprise different layers in contact with each other.

30. (previously presented) The system of claim 29, wherein the guided-mode resonance waveguide grating further comprises a third layer in contact with the at least one waveguide layer.

31. (previously presented) The system of claim 29, wherein the guided-mode resonance waveguide grating further comprises a third layer in contact with the at least one grating layer.

32. (previously presented) The system of claim 15, wherein the guided-mode resonance waveguide grating is configured for use as a biosensor.

33. (previously presented) The system of claim 15, wherein the guided-mode resonance waveguide grating is configured for use as an electrochemical sensor.

34. (previously presented) The system of claim 15, wherein the guided-mode resonance waveguide grating is configured for use as an optical sensor.

35. (currently amended) A waveguide grating device, comprising:

at least one waveguide through which a signal having at least one wavelength may be propagated, the at least one waveguide having an end, the end having an endface; and

a guided-mode resonance waveguide grating fabricated on the endface of the at least one waveguide, the guided-mode resonance waveguide grating having at least one waveguide layer and at least one grating layer, the waveguide grating also having a plurality of ~~variable~~ parameters including at least one permittivity of the at least one grating layer, permittivity of the at least one waveguide layer, periodic structure of the at least one grating layer, grating fill factor of the at least one grating layer, thickness of the at least one waveguide layer, and thickness of the at least one grating layer, the periodic structure of the at least one grating layer having a period less than the at least one wavelength of the signal.

36-37. (canceled)

38. (previously presented) A method of forming a waveguide grating device, comprising:

providing at least one waveguide having an end, the end having an endface;

fabricating a guided-mode resonance waveguide grating on the endface of the waveguide to form the waveguide grating device, the guided-mode resonance waveguide grating including at least one waveguide layer and at least one grating layer.

39. (original) The method of claim 38, further comprising cleaving the end to form the endface of the at least one waveguide.

40. (previously presented) The method of claim 38, wherein the at least one waveguide layer comprises polymer.

41. (original) The method of claim 40, wherein the fabricating comprises dipping the endface of the at least one waveguide into a polymer.

42. (previously presented) The method of claim 41, further comprising patterning the at least one waveguide layer.

43. (original) The method of claim 42, wherein the patterning comprises holographic interferometry.

44. (original) The method of claim 42, wherein the patterning comprises photolithography.

45. (original) The method of claim 40, wherein the fabricating comprises spin coating the endface of the at least one waveguide with a polymer.

46. (previously presented) The method of claim 38, wherein the at least one grating layer comprises dielectric material.

47. (previously presented) The method of claim 46, further comprising etching the at least one grating layer.

48. (previously presented) The method of claim 38, wherein the at least one waveguide layer is adjacent the at least one grating layer, and the fabricating comprises depositing the at least one waveguide layer on the endface of the at least one waveguide by sputtering and coating the at least one waveguide layer with the at least one grating layer.

49. (previously presented) The method of claim 38, wherein the fabricating comprises depositing the at least one waveguide layer on the endface of the at least one waveguide by thermal evaporation.

50. (previously presented) The method of claim 38, wherein the fabricating comprises depositing the at least one waveguide layer on the endface of the at least one waveguide by electron-beam evaporation.

51. (previously presented) The method of claim 38, wherein the fabricating comprises depositing the at least one waveguide layer on the endface of the at least one waveguide by liquid phase epitaxy.

52-60. (canceled)

61. (previously presented) The system of claim 15, wherein the permittivity of the at least one waveguide layer and one of the permittivities of the at least one permittivity of the at least one grating layer are the same.

62. (previously presented) The system of claim 15, wherein the permittivity of the at least one waveguide layer and one of the permittivities of the at least one permittivity of the at least one grating layer are different.

63. (previously presented) The device of claim 35, wherein the at least one grating layer and the at least one waveguide layer comprise the same layer.

64. (previously presented) The device of claim 35, wherein the at least one grating layer and the at least one waveguide layer comprise different layers.

65. (previously presented) The device of claim 35, wherein the permittivity of the at least one waveguide layer and one of the permittivities of the at least one permittivity of the at least one grating layer are the same.

66. (previously presented) The device of claim 35, wherein the permittivity of the at least one waveguide layer and one of the permittivities of the at least one permittivity of the at least one grating layer are different.

67-70. (canceled)